TECHNOLOGY LITERACY CHALLENGE PROGRAMS: TECHNOLOGY LITERACY CHALLENGE FUND, TECHNOLOGY INNOVATION CHALLENGE GRANTS, AND NATIONAL ACTIVITIES

Goal: To use educational technology as part of broader education reform that will provide new learning opportunities and raise educational achievement for all students.

Relationship of Program to Volume 1, Department-wide Objectives: The Technology Literacy Challenge Fund, Technology Innovation Challenge Grants, and National Activities support Objective 1.7 (schools use advanced technology for all students and teachers to improve education) by providing funds to increase school and student access to educational technology and promote the development of models of effective practice in integrating educational technology into teaching and learning).
FY 2000—$605,755,000 (Excluding Preparing Tomorrow's Teachers to Use Technology)
FY 2001—$552,000,000 (Requested budget for Technology Literacy Challenge Fund Leadership Activities and Community Technology Centers)
FY 2000—$100,000,000 (Requested budget for Community Technology Centers)
FY 2001—Technology Innovation Challenge Grants is proposed for consolidation with Star Schools under Next Generation Technology Innovation, for which $170,000,000 is requested.

OBJECTIVE 1: STUDENTS IN HIGH-POVERTY SCHOOLS WILL HAVE ACCESS TO EDUCATIONAL TECHNOLOGY THAT IS COMPARABLE TO THE ACCESS HAD BY STUDENTS IN OTHER SCHOOLS.

Indicator 1.1 Computer access in high-poverty schools: The student-to-computer ratio in high-poverty schools will be comparable to that in other schools.

Targets and Performance Data				Assessment of Progress	Sources and Data Quality
Students to computer ratio				**Status:** Positive movement toward target. **Explanation:** Internet access is one measure of the multimedia capacity of computers. Student to computer ratios are decreasing toward the goal of one computer for every five students. However, student to computer ratios are decreasing at a slower rate in high-poverty schools than low-poverty schools. The band used to define "high-poverty schools" consists of schools in which 71 percent of students or more are eligible for free or reduced-price lunch; the band used to define "low-poverty schools" consists of schools in which less than 11 percent of students are eligible for free and reduced-price lunch.	**Source:** Internet Access in U.S. Public Schools and Classrooms: 1994-99, February 2000. *Frequency:* Annually. *Next Update:* February 2001 for fall 2000. **Validation Procedure:** Data validated by NCES review procedures and NCES Statistical Standards. **Limitations of Data and Planned Improvements:** Poverty measures are based on data on free and reduced-price school lunches, which may underestimate school poverty levels, particularly for older students and immigrant students.
Year	**Actual Performance**		**Performance Targets**		
	Low-Poverty Schools	**High-Poverty Schools**	**High-Poverty Schools**		
Fall 1998:	10:1	17:1			
Fall 1999:	**7:1**	**16:1**	**15:1**		
Fall 2000:			10:1		
Fall 2001:			5:1		

Indicator 1.2 Internet access in high-poverty schools: Internet access in high-poverty school classrooms will be comparable to that in other schools.

Targets and Performance Data				Assessment of Progress	Sources and Data Quality
Percentage of classrooms with Internet access				**Status:** No change. **Explanation:** While there has been no change in the percentage of classrooms in high-poverty schools with Internet access, the number of high-poverty schools with Internet access rose to 90 percent in 1999, up from 80 percent in 1998. As high-poverty schools increasingly obtain access to the Internet, it is likely that their classroom connections will subsequently increase. The band used to define "high-poverty schools" consists of schools in which 71 percent of students or more are eligible for free and reduced-price lunch; the band used to define "low poverty schools" is of schools in which less than 11 percent of students are eligible for free and reduced-price lunch.	**Source:** Internet Access in U.S. Public Schools and Classrooms, 1996, 1997, 1998, 1999 & 2000. *Frequency:* Annually. *Next Update:* February 2001 for fall 2000. **Validation Procedure:** Data validated by NCES review procedures and NCES Statistical Standards. **Limitations of Data and Planned Improvements:** Poverty measures are based on data on free and reduced-price school lunches, which may underestimate school poverty levels, particularly for older students and immigrant students.
Year	**Actual Performance**		**Performance Targets**		
	Low-poverty schools	**High-poverty schools**	**High-poverty schools**		
Fall 1994:	4	2			
Fall 1995:	9	5			
Fall 1996:	18	7			
Fall 1997:	36	14			
Fall 1998:	62	39			
Fall 1999:	**74**	**39**	**55**		
Fall 2000:			100		
Fall 2001:			100		

Indicator 1.3 High poverty districts—Technology Literacy Challenge Fund: The number of states that award at least 66 percent of their TLCF funds to school districts designated as high-poverty will increase.

Targets and Performance Data			Assessment of Progress	Sources and Data Quality
Year	**Actual Performance**	**Performance Targets**	**Status:** Unable to judge. **Explanation:** The FY 1997 performance covers the period from October 1996 to September 1998. In September of 1998, 27 states reported awarding 66 percent or more of their FY 1997 TLCF allocation to districts they designated as high poverty. There is no statutory TLCF requirement that a specific amount or percentage of state allocations be awarded to high-poverty districts, nor does the statute define poverty. States must, however, provide assistance to the districts with the highest numbers or percentages of children in poverty and the greatest need for technology. The amount of funding provided to high-poverty districts is dependent on state program implementation and the effectiveness of the Department's leadership with states.	**Source:** Technology Literacy Challenge Fund online performance report. *Frequency:* Annually. *Next update:* 2000 (for FY 1998 data). **Validation Procedure:** Data supplied by states. No formal verification procedure applied. **Limitations on Data and Planned Improvements:** Subgrant allocation data is state self-reported and there is no alternative source. Reports on the distribution of funds are estimates (and may be substantially inaccurate) until the year following the end of their period of availability. Thus, state awards of FY 1998 funds are reported in 2000, following the end of their period of availability in September 1999.
FY 1997:	27 of 50	Establish baseline		
FY 1998:	Data not yet available	32 of 50		
FY 1999:	**No data available**	35 of 50		
FY 2000:		37 of 50		
FY 2001:		50 of 50		

OBJECTIVE 2: PROVIDE TEACHERS AND OTHER EDUCATORS WITH THE PROFESSIONAL DEVELOPMENT AND SUPPORT THEY NEED TO HELP STUDENTS LEARN THROUGH THE USE OF EDUCATIONAL TECHNOLOGY.

Indicator 2.1 Staff training and support: Increasing percentages of teachers will indicate that they feel very well prepared to integrate educational technology into classroom instruction.

Targets and Performance Data			Assessment of Progress	Sources and Data Quality
Year	**Actual Performance**	**Performance Targets**	**Status:** No 1999 data, but progress toward target is likely. **Explanation:** In 1998, 20 percent of teachers reported that they were fully prepared to integrate technology in their instruction. Federal resources for training for teachers to use technology (including the Technology Literacy Challenge Fund and the Technology Innovation Challenge Grants) as well as state and local funds continue to support professional development in the use of educational technology for teachers and, correspondingly, progress toward the targets for this indicator.	**Source:** Teacher Quality: Report on the Preparation of Public School Teachers, 1999. *Frequency:* Biennially. *Next Update:* 2001 for fall 2000 data. **Validation Procedure:** Data validated by NCES review procedures and NCES Statistical Standards. **Limitations of Data and Planned Improvements:** The data is self-report data on feelings of preparedness rather than objective measures of teachers' actual classroom practice. The resources required, in terms of cost and burden, to regularly gather data other than self-report data on teacher preparedness for a nationally representative sample are prohibitive.
FY 1998:	20%			
FY 1999:	**No data available**	**Continuing increase**		
FY 2000:		40%		
FY 2001:		Continuing increase		

Indicator 2.2 District professional development: The percentage of TLCF subgrantees that report professional development, as a primary use of funds will increase.

Targets and Performance Data			Assessment of Progress	Sources and Data Quality
Percentage of TLCF districts			**Status:** Unable to judge. **Explanation:** The FY 1997 performance thus covers the period from October 1996 to September 1998. States conduct competitions under the Technology Literacy Challenge Fund and have wide discretion to set priorities for those competitions. Districts also have considerable discretion (depending on the state) to direct the use of funds. States have been encouraged to devote at least 30 percent of funds to professional development related to educational technology beginning in 1998.	**Source:** Technology Literacy Challenge Fund online performance report. *Frequency:* Annually. *Next Update:* 2000 for FY 1998 Supplemental Study of the Technology Literacy Challenge Fund. **Validation Procedure:** Data supplied by states. No formal verification procedure applied. **Limitations of Data and Planned Improvements:** District data are self-reported by districts to states that self-report to ED. Data are estimates from district technology coordinators for the most part. Of the 1997 subgrantee reports examined, 229 (11.6 percent) provided no data related to this indicator.
Year	**Actual Performance**	**Performance Targets**		
FY 1997:	55%	Baseline established		
FY 1998:	Data not yet available	60%		
FY 1999:	**Data not yet available**	**65%**		
FY 2000:		70%		
FY 2001:		75%		

Indicator 2.3 Professional development models: An increasing percentage of TICG projects will develop models of professional development that result in improved instructional practice.

Targets and Performance Data			Assessment of Progress	Sources and Data Quality
Year	**Actual Performance**	**Performance Targets**	**Status:** No 1999 data but progress toward target is likely. **Explanation:** The mission of the Technology Innovation Challenge Grant program is to support the demonstration of new and innovative approaches to using technology to improve teaching and learning. Performance reports from projects due in late spring 2000 will provide the necessary data to respond to this indicator.	**Source:** Evaluations conducted by the Technology Innovation Challenge grantees and reviewed by ED program and evaluation staff. *Frequency:* Annually. *Next Update:* September 2000. **Validation Procedure:** Data supplied by grantees. No formal verification procedure applied. **Limitations of Data and Planned Improvements:** FY 2000 will be the first time project performance information is collected through an online reporting system. Analysis of the operation of the system and the data collected will be conducted. Issues regarding consistency in reporting will be examined in this pilot year.
1999:	**No data available**	**No data available**		
2000:		10% of the total number of projects		
2001:		15% of the total number of projects		
2002:		20% of the total number of projects		

OBJECTIVE 3: PROMOTE THE AVAILABILITY AND USE OF EDUCATIONAL TECHNOLOGY AS PART OF A CHALLENGING AND ENRICHING CURRICULUM IN EVERY SCHOOL.

Indicator 3.1 Classroom use: Students will increasingly use educational technology for learning in core academic subjects.

Targets and Performance Data				Assessment of Progress	Sources and Data Quality
Percentage of students using computers in math				**Status:** Positive trend toward target. **Explanation:** Computer use is fairly ubiquitous in writing. As computers become more available and knowledge about how to integrate computer use into instruction increases, computer use in mathematics also likely will increase.	**Source:** NAEP, 1996. *Frequency*: Every 4 years. *Next Update:* 2000 for 1999 data. **Validation Procedure:** Data validated by NCES review procedures and NCES Statistical Standards. **Limitations of Data and Planned Improvements:** Questions yielding this data do not fully capture the extent to which computers are regularly used in classrooms to support instruction. For mathematics, NAEP asks students if they have ever studied math through computer instruction. For writing, NAEP asks students if they use a computer to write stories or papers.
Year	**Actual Performance**		**Performance Targets**		
	Age 13	**Age 17**	**(Both grades)**		
1978:	14%	12%			
1996:	54%	42%			
1999:	**Data not yet available**	**Data not yet available**	**75%**		
2000:			Continuing increase		
2001:			Continuing increase		
Percentage of students using computers in writing					
Year	**Actual Performance**		**Performance Targets**		
	Eighth grade	**Eleventh grade**	**(Both grades)**		
1978:	15%	19%			
1996:	91%	96%			
1999:	**Data not yet available**	**Data not yet available**	**98%**		
2000:			Continuing increase		
2001:			Continuing increase		

Indicator 3.2 Progress on State Goals—Technology Literacy Challenge Fund: An increasing percentage of states will report progress on state goals related to integrating online and other technology resources into the curriculum.

Targets and Performance Data			Assessment of Progress	Sources and Data Quality
Percentage of states			**Status:** Unable to judge. **Explanation:** States report progress on state goals related to the national goals in annual performance reports. Most states (46 of 50) have goals that relate to national ET goal concerning integrating ET resources into the curriculum. Progress on these goals for FY 1998 will be reported in 2000.	**Source:** Technology Literacy Challenge Fund Online performance report. *Frequency:* Annually. *Next Update:* 2000 (for 1998 data). **Validation Procedure:** Data supplied by states. No formal verification procedure applied. **Limitations of Data and Planned Improvements:** States report on their own goals and information cannot be added across states. There are currently no plans to establish common measures, although states will be provided with a critique of their goals resulting from the Supplemental Study analysis.
Year	**Actual Performance**	**Performance Targets**		
1997:	N/A	N/A		
1998:	Data not yet available	Baseline established		
1999:	**Data not yet available**	**50%**		
2000:		55%		
2001:		60%		

Indicator 3.3 Classroom impact: The percentage of projects that demonstrate positive impacts on curriculum and student achievement will increase.

Targets and Performance Data			Assessment of Progress	Sources and Data Quality
Year	**Actual Performance**	**Performance Targets**	**Status:** No 1999 data, but progress toward target is likely. **Explanation:** The mission of the Technology Innovation Challenge Grant program is to support the demonstration of new and innovative approaches to using technology to improve teaching and learning. Performance reports from projects due in late spring 2000 will provide the necessary data to respond to this indicator. For the purposes of this assessment, student achievement may include improved attendance and discipline, acquisition of technology and telecommunications skills, problem-solving skills, performance or portfolio assessments, state assessment tools, or standardized tests.	**Source:** Evaluations conducted by the Technology Innovation Challenge grantees and reviewed by Office of Educational Research and Improvement program and evaluation staff. *Frequency:* Annually. *Next Update:* Summer 2000. **Validation Procedure:** Data supplied by grantees. No formal verification procedure applied. **Limitations of Data and Planned Improvements:** FY 2000 will be the first time project performance information is collected through an online reporting system. Analysis of the operation of the system and the data collected will be conducted. Issues regarding consistency in reporting will be examined in this pilot year.
1999:	**No data available**	**No data available**		
2000:		25% of projects		
2001:		30% of projects		
2002:		35% of projects		

OBJECTIVE 4: HELP IMPROVE STUDENTS' INFORMATION TECHNOLOGY LITERACY SKILLS IN ALL STATES.

Indicator 4.1 Standards for students in educational technology: The number of states that have standards for student proficiency in the use of technology will increase.

Targets and Performance Data			Assessment of Progress	Sources and Data Quality
Year	**Actual Performance**	**Performance Targets**	**Status:** No 1999 data, but progress toward target is likely. **Explanation:** In 1997-98, 38 states had standards or graduation requirements pertaining to technology. A large portion of states already have technology standards in place for their students. As states increasingly devote resources to educational technology, they also increasingly focus on measuring the impact of educational technology. Setting standards is a precursor to that measurement of student proficiency.	**Source:** Education Week, Technology Counts, 1998; TLCF Profiles for future updates. *Frequency:* Planned. *Next Update:* Fall 2000 for 1999-2000 school year. **Validation Procedure:** Education Week Data supplied by Education Week. No formal verification procedure applied. TLCF Profile data will be provided by SRI International. **Limitations of Data and Planned Improvements:** Education Week provides no detail on the rigor or comprehensiveness of standards.
1998:	38			
1999:	**No data available**	**42**		
Year	**Actual Performance**	**Performance Targets**		
2000:		45		
2001:		46		

Indicator 4.2 Student proficiency in technology: In states that assess student proficiency in technology, the percentage of students that are proficient will increase.

Targets and Performance Data			Assessment of Progress	Sources and Data Quality
Year	**Actual Performance**	**Performance Targets**	**Status:** Unable to judge. **Explanation:** Data on this indicator has not yet been collected; however, collection of relevant data is planned through the TLCF Profiles project. Development of a test of student computer skills is being planned for future studies and evaluations.	**Source:** TLCF Profiles. *Frequency:* Planned. *Next Update:* Planned. **Validation Procedure:** Data to be supplied by SRI International. No formal verification procedure applied. **Limitations of Data and Planned Improvements:** Limitations of data will be defined as data is collected.
1999:	**No data available**	**No data available**		
2000:		Baseline to be established		
2001:		Increase over baseline		

OBJECTIVE 5: THROUGH THE CREATION OR EXPANSION OF COMMUNITY TECHNOLOGY CENTERS IN DISADVANTAGED AREAS, IMPROVE ACCESS TO COMPUTERS, THE INTERNET, AND EDUCATIONAL TECHNOLOGY.

Indicator 5.1 Customer reports on value of access: An increasing percentage of clients of the Community Technology Centers will report that access to computer technology improved their educational or employment outcomes.

Targets and Performance Data			Assessment of Progress	Sources and Data Quality
Year	**Actual Performance**	**Performance Targets**	**Status:** No 1999 data available, but baseline data are being established in 2000. Progress toward goal is likely. **Explanation:** The mission of the Community Technology Center program is to establish or expand community centers that increase access to computers, the Internet, and educational technology for residents of economically distressed communities. The program awarded its first grants in fall 1999.	**Source:** Annual performance report, customer satisfaction survey. *Frequency:* Annually *Next Update:* January 2001 **Validation procedure:** Data supplied by grantees. No formal verification process procedure applied. **Limitations of data and planned improvements:** FY 2000 will be the first time project performance information is collected. Issues regarding consistency in reporting will be examined in this year. Satisfaction measures will be self-reported from clients.
FY 1999:	**No data available**	**No data available**		
FY 2000		Continuing increase		
FY 2001		Continuing increase		
FY 2002		85%		

KEY STRATEGIES

Strategies Continued from 1999

- Provide financial and technical assistance to expand classroom access, particularly in high-poverty schools, to modern multimedia computers, the Internet, networked learning environments, engaging software, and on-line resources integrated with school curricula.
- Coordinate with related technology initiatives at the Federal, state, and local levels and with professional development programs to promote effective use of educational technology.
- Identify effective approaches for using educational technology to improve student achievement in core subjects and disseminate information on these approaches. Also identify effective approaches for improving students' technology literacy and disseminate information on these approaches.
- Support development of assessments that measure students' technology proficiency.
- Connect with institutions of higher education (including colleges of education) for high-quality pre-service and in-service training for teachers in educational technology.
- Develop models that provide teachers with sustained training and support in the use of technology for improved instruction.
- Encourage development and demonstration of effective strategies for improving the use of educational technology, particularly in high-poverty schools, and for training teachers to effectively use technology in instruction.
- Identify gaps in data sources on use and effectiveness of educational technology, and work to fill those information gaps.
- Work with the Federal Communications Commission to expand schools' access to advanced telecommunications.
- Encourage states to use their Federal funds to leverage and coordinate with other programs to support effective use of educational technology.
- Report to report on states' progress relative to their own goals and to target program improvement efforts within states and to identify success in integrating technology into school curricula.

New or Strengthened Strategies

- Continue to coordinate with the E-rate administered by the Federal Communication Commission's Schools and Libraries Division.

HOW THIS PROGRAM COORDINATES WITH OTHER FEDERAL ACTIVITIES

- Technology Innovation Challenge Grants are working collaboratively with the Star Schools program to expand their efforts in the area of distance education to extend the range of professional development offerings. They are also working jointly with the Preparing Tomorrow's Teachers to Use Technology program to link preservice training to K-12 classroom activities. Grantees are also taking advantage of the E-rate discounts provided by the Federal Communications Commission to leverage the telecommunications costs. The TLCF coordinates with the Preparing Tomorrow's Teachers to Use Technology program, and within states requires district plans that coordinates e-rate subsidies with other sources of funding.

CHALLENGES TO ACHIEVING PROGRAM GOAL

- In general, the Technology Innovation Challenge Grant program is meeting the established program goal. One of the challenges that continues to face the program, however, is staying on the forefront of educational reform as new and emerging technologies continue to be developed in business and industry. In addition, the program faces the challenges of institutionalizing and replicating new learning approaches systemically.

INDICATOR CHANGES

From FY 1999 Annual Plan (two years old)

Adjusted

- Indicator 1.1 was changed to more specifically focus on NAEP and to include specific targets as FY 2000 Indicator 1.1.
- FY 1999 Indicator 3.3 was modified as Indicator 3.2 in FY 2000 to be more specific; the reference to librarians was removed.
- Dates in Indicator 5.2 were updated.
- The wording of Indicator 6.1 was simplified.

Dropped

- Indicator 1.2 was dropped.
- Indicator 3.2 was dropped.
- Indicators 4.4 and 4.5 were dropped.
- Indicator 6.2 was dropped.
- For FY 2000 Indicator 7.2, a reference to the state and local levels was added to the FY 1999 Indicator 7.2.

From FY 2000 Annual Plan (last year's)

Adjusted

- The order of the indicators was changed. Indicator numbers in the items below refer to number from the FY 2000 annual plan.
- The wording of Objective 2 (Help improve students' technology literacy through federal educational technology programs along with other federal programs and state and local reform efforts) was simplified.
- The wording of Indicator 2.1 (Student proficiency in technology: between 1998 and 2001, the percentage of students who demonstrate proficiency in using multimedia computers and the Internet will increase) was modified.
- Objective 3 (Provide practicing and prospective teachers with the professional development and support they need to help students learn through modern multi-media computers and the Internet) was simplified by replacing "practicing and prospective teachers" with "teacher and other educators" and "modern multi-media computers and the Internet" with "educational technology."
- Indicator 3.2 (Staff training and support: increasing proportions of teachers will have the professional development and the administrative, technical, and local financial support they need to help students learn through modern multimedia computers and the Internet) was modified to better align with the survey question used to obtain the performance data.
- Objective 6 was simplified by replacing "technology-based curricula and the resources of the Internet" with "educational technology."

INDICATOR CHANGES (CONTINUED)

From FY 2000 Annual Plan (last year's)

- Indicator 6.1 Classroom use (An increasing number of teachers will integrate high-quality technology based curriculum into their instruction) was modified to read "students will increasingly use educational technology for learning in core academic subjects" to better align the indicator with the data source.

Dropped

- Former Indicator 1.1 (Shared indicator of national student performance) was deleted because connections between the use of educational technology and changes in broad measures of national student performance cannot reliably be made.
- Former Indicator 3.1 (Certification tied to technology training: training in the use of modern multimedia computers and the Internet for effective instruction will be increasingly required for certification and accreditation of practicing and prospective teachers, schools, and districts) was deleted.
- Former Indicator 4.1 (Student access: the ratio of students to modern multimedia computers in public schools will improve to 5 students per modern multimedia computer by the year 2000) was deleted because the Indicator 1.1 adequately captures the construct and Volume I, Objective 1.7 of the Department's strategic plan includes a similar indicator.
- Former Indicator 5.1 (School access: the percentage of public schools with access to the Internet will increase to 95 percent by 2000) and Indicator 5.2 (Classroom access: the percentage of public school instructional rooms connected to the Internet will increase from 14 percent in 1996 to higher percentages thereafter) were deleted because the new Indicator 1.2 adequately captures the construct and Volume I, Objective 1.7 of the Department's strategic plan includes a similar indicator.
- Former Indicator 4.3 (Effective technologies: students with disabilities will have access to effective technologies for learning) was deleted because serving students with disabilities is not a focus of either TLCF or TICG; equal access for students with disabilities is required by law; and Volume I, Objective 1.7 of the Department's strategic plan includes a similar indicator.
- Objective 7 (Promote effective federal program management and guidance to support state and local implementation of statewide technology plans and the use of innovative strategies).
- Former Indicator 7.1 (The technical assistance and other support that the U.S. Department of Education provides, either directly or through its programs, will be of high quality and useful, and will be judged by customers as adequate to meet their needs) was deleted from the program performance plan to be used internally for program management purposes.
- Former Indicator 7.2 (Private sector collaboration: private sector participation in planning, support, and implementation of educational technology at the state and local levels will increase) was deleted from the program performance plan to be used internally for program management purposes.

New

- Current Indicator 1.2 was added.
- Current Indicators 2.3 and 3.3 were added.
- Indicator 5.1 to include Community Technology Centers.